What is claimed:

1. A compound comprising:

a metal-peptide complex formed by the chelation of a metal to a zinc finger peptide, the metal-peptide complex having a tertiary structure enabling said metal-peptide complex to bind to a mammalian nucleic acid, wherein the metal is not zinc, iron, cadmium or cobalt.

2. The compound of claim 1 wherein the zinc finger peptide has a metal binding site comprising amino acid residues selected from the group consisting of four cysteine residues, one histidine and three cysteine residues, and two cysteine and two histidine residues to which the metal is complexed.

3. The compound of claim 1 wherein the metal is selected from the group consisting of ionic forms of nickel, copper, arsenic, selenium, gadolinium, technetium, ruthenium, palladium, silver, indium, antimony, rhenium, osmium, iridium, platinum, gold, mercury, thallium, lead, bismuth, polonium, astatine, manganese, indium, samarium and scandium.

4. The compound of claim 1 wherein the radionuclide is selected from the group consisting of ^{62}Cu, ^{64}Cu, ^{67}Cu, ^{97}Ru, ^{105}Rh, ^{109}Pd, ^{186}Re, ^{188}Re, ^{198}Au, ^{199}Au, ^{203}Pb, ^{211}Pb, ^{212}Bi, ^{99m}Tc, and ^{111}In.

5. A composition comprising the metal-peptide complex of claim 1 disposed within a pharmaceutically acceptable carrier.

6. A compound comprising:

a metal-peptide complex formed by the chelation of a metal atom to a zinc finger peptide, the metal-peptide complex having a tertiary structure enabling said metal-peptide complex to bind to a mammalian nucleic acid, wherein the metal is selected from the group consisting of indium, technetium, rhenium and ruthenium.

7. A compound comprising:

a radionuclide-peptide complex formed by the chelation of a radionuclide to a zinc finger peptide, the radionuclide-peptide complex having a tertiary structure enabling said radionuclide-peptide complex to bind to a mammalian nucleic acid, wherein the radionuclide is not zinc, iron, cadmium or cobalt.

8. A method of determining the location of diseased tissues in a mammal, the diseased tissues characterized by the presence of degenerating neoplastic or myocardial cells, comprising:

providing a quantity of a metal-peptide complex formed by the chelation of a metal atom to a zinc finger peptide, the metal-peptide complex having a tertiary structure enabling said metal-peptide complex to bind to a mammalian nucleic acid;

administering to the mammal the metal-peptide complex in an amount effective for imaging wherein the metal-peptide complex is deposited in degenerating cells of the diseased tissues and preferentially binds to nucleic acids therein forming a detectable deposition site; and

imaging the deposition site by metal ion detection means.

9. The method of claim 8 wherein the degenerating neoplastic cells are cells in a primary cancer tumor or in a metastatic cancer.

10. The method of claim 8 wherein in the imaging step the metal ion detection means are magnetic resonance imaging means or nuclear medicine imaging means.

11. The method of claim 8 wherein the metal-peptide complex comprises a metal selected from the group consisting of ionic forms of nickel, copper, arsenic, selenium, gadolinium, technetium, ruthenium, palladium, silver, indium, antimony, rhenium, osmium, iridium, platinum, gold, mercury, thallium, lead, bismuth, polonium, astatine, manganese, indium, samarium and scandium.

12. The method of claim 8 wherein the metal of the metal-peptide complex comprises a radioisotope.

13. The method of claim 12 wherein the metal-peptide complex comprises a metal selected from the group of radioisotopes consisting of radioisotopes of indium, technetium, rhenium and ruthenium.

14. The method of claim 8 wherein in the administering step, the effective amount of the metal-peptide complex comprises from about 5 to about 1000 mCi.

15. The method of claim 8 wherein in the administering step, the effective amount of a paramagnetic, superparamagnetic, or ferromagnetic metal in the metal-peptide complex is 1 μmol/kg of mammal weight to 1.0 mmol/kg of mammal weight.

16. The method of claim 8 wherein the metal-peptide complex is administered parenterally.

17. The method of claim 8 wherein the metal-peptide complexed is administered as a composition comprising a pharmaceutically acceptable carrier.

18. A therapeutic treatment for killing neoplastic cancer cells in a primary tumor or a metastatic tumor in a mammal, comprising:

providing a metal-peptide complex formed by the chelation of a metal atom to a zinc finger peptide, the metal-peptide complex having a tertiary structure enabling said metal-peptide complex to bind to a mammalian nucleic acid, wherein the metal is a radiometal; and

administering to the mammal an amount of the metal-peptide complex wherein the metal-peptide complex is deposited in necrotic neoplastic cells in the primary tumor or metastatic tumor and preferentially binds to nucleic acids in said necrotic cells in an amount sufficient to deliver a lethal amount of radiation to living neoplastic cells in the vicinity of the necrotic neoplastic cells near the metal-peptide complex therein.

19. The method of claim 18 wherein the metal-peptide complex comprises a metal selected from the group consisting of radioisotopes of indium, technetium, rhenium and ruthenium.

20. The method of claim 18 wherein in the administering step, the effective amount of the metal-peptide complex comprises from about 5 to about 1000 mCi.

21. A kit for use in preparing a radiopharmaceutical composition, comprising:

a container having an amount of a zinc finger peptide disposed therein; and

a reducing agent for reducing the zinc finger peptide to prepare the peptide for complexing with a radiometal to form a metal-peptide complex having a tertiary structure enabling said metal-peptide complex to bind to a mammalian nucleic acid.

22. The kit of claim 21 further comprising a radiometal for complexing to the peptide for forming the metal-peptide complex.

23. The kit of claim 21 wherein the metal is selected from the group consisting of ionic forms of nickel, copper, arsenic, selenium, gadolinium, technetium, ruthenium, palladium, silver, indium, antimony, rhenium, osmium, iridium, platinum, gold, mercury, thallium, lead, bismuth, polonium, astatine, manganese, indium, samarium and scandium.

24. The kit of claim 21 wherein the metal is selected from the group consisting of radioisotopes indium, technetium, rhenium and ruthenium.

25. The kit of claim 24 wherein the reducing agent comprises an amount of stannous ion in the form of stannous glucoheptonate, stannous gluconate, stannous phosphonate, stannous chloride, and stannous fluoride.